

# **CGIAR Information Service**

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**THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH  
TECHNICAL ADVISORY COMMITTEE**

## **Report of the TAC Panel on Vegetable Research**

**TAC SECRETARIAT**

**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**

**June 1990**

## TAC PANEL ON VEGETABLE RESEARCH

### 1. General Statement

The Panel was pleased with the information provided in the External Review Report of AVRDC and generally agreed with the recommendations made. It considered that the information available to the Panel was adequate and that further visits to AVRDC would not be necessary. The Panel reaffirmed TAC's position on the importance of vegetables in the developing world and on the high priority it assigns to a CGIAR initiative in this field. An international effort in vegetable research would be fully consistent with the CGIAR mission and goals.

### 2. Future CGIAR Activities in Vegetables

At the request of the Group, TAC in 1988 prepared a proposal for CGIAR-supported research on vegetables. The proposal was in the form of a TAC commentary that amended and highlighted the report of TAC's consultant following an intensive global study, interactions with representatives from national, regional and international programmes, and a thorough exchange of views in the Committee.

TAC recommended that the Group create and support an international entity which would help establish and coordinate regional collaborative vegetable research networks in Asia, sub-Saharan Africa and Latin America. The CGIAR support was to be limited initially to tomatoes, peppers and onions, and to leafy green vegetables. However, it was also recommended that it carry out studies and consultations with relevant institutions to clarify the importance of other commodities such as okra and eggplant, and to determine the major constraints to production increases and marketing, as well as their researchability. The entity would then have flexibility to phase these vegetables into its work as necessary.

TAC further recommended that highest priority be assigned to supporting research for tropical environments, with activities for subtropical environments to be initiated once those for tropical environments had become operational.

The central emphasis of research thrusts would be on:

- evaluation and utilization of land races and cultivars at selected locations within a range of tropical and sub-tropical environments;
- assessment of market absorption capacity and marketing constraints leading to the identification of production areas;
- identification of researchable constraints and assessment of potential impact.

To overcome the different constraints, research might be needed in such fields such as adaptation breeding for various stresses; seed physiology and seed production technology; appropriate improved technologies and cultural practices; plant protection; post harvest physiology and technology, and socio-economic constraints.

### 3. Overview of Vegetable Research Institutions

In the initial post-war years most developing countries devoted their primary attention to research on major cereal crops and vegetables received only marginal attention. As supplies of the staple commodities have become more reliable, however, there has been a rapid increase in the capacity of national research centers to conduct vegetable research. This has been particularly true in Asia. At present there are several NARS within Asia with cadres of young, well-trained research staff and with improved physical facilities for vegetable research. Although these are young programmes, the emerging capacity is substantially above that existing when TAC reviewed this aspect in the late 1970s. Several programmes are at the point where they can contribute substantially to collaborative research efforts. Latin American capacity for vegetable research has also improved substantially in the last decade and there are a number of strong programmes. More recently, several countries in Africa have identified vegetable research as a continuing priority area and have established units to deal with this subject. Many countries in all these regions accord highest priority to continuing research efforts with vegetables. There are no ongoing CGIAR efforts in vegetable research. The only non-associated centre working on vegetables is AVRDC.

#### 4. Characteristics of AVRDC

The original mandate of AVRDC was to promote the production, marketing and utilization of vegetables in the lowland tropics of Asia. Over time, the Centre's mandate has become a more global one concerned with (i) improving the nutritional quality and production potential of vegetables in the humid and sub-humid tropics and (ii) upgrading the quality of vegetable-related research, teaching and extension personnel in developing countries through training and dissemination of information. The major focus of AVRDC's efforts to date has been in Asia although recently AVRDC has become the executive agency of a collaborating research network for Eastern and Southern Africa. AVRDC's draft strategic plan proposes that AVRDC take on a global role in which it would continue to serve the needs of Asia while gradually expanding collaboration with countries in sub-Saharan Africa, Latin America, Near East and North Africa and the rest of the developing world.

In addition to research on vegetables, AVRDC also conducts research on roots and tubers (sweet potato) and grain legumes (soybeans and mungbeans). As these activities overlap with those of the CGIAR Centres -- CIP and IITA -- the Centre has proposed in its draft strategic plan that it phase out its activities on sweet potato. The external review report has also recommended that the Centre transfer its responsibilities on grain legumes to national programmes.

The original choice of Taiwan as the headquarters site was made largely on technical grounds. It has hot-wet and cool-dry growing seasons which permit continuous testing of varieties and practices, and the site has been particularly advantageous to AVRDC for the testing of heat-tolerance. In addition Taiwan provided good transportation and communication facilities, proximity to a network of vegetable growers, marketing channels and research institutions, and strong support from the host government.

AVRDC's location in Taiwan has created political problems in terms of its relationship with the Peoples Republic of China (PRC). In recent years, the situation has improved substantially. Working relations have been established between AVRDC and PRC after the establishment of a separate AVRDC activity at Kasetsart University of Thailand. As a result, there has been a flow of genetic materials from AVRDC to PRC through Thailand, and many scientists from PRC have been trained at AVRDC-Thailand.

At the official level, the location of AVRDC in Taiwan remains a very sensitive issue however. According to the External Review report, as long as there are PRC-related problems associated with the Taiwan location of AVRDC, PRC/AVRDC interactions should occur through the Thailand Centre. Modern communications techniques would make this feasible. Thailand could become the headquarters for AVRDC's operations for those countries that are concerned with the Taiwan location, if this would be a continuing problem.

AVRDC's major activity is research which accounts for about 53% of the Center's expenditures, while the development of national research capacity through training, information and network support accounted for a further 18%. The cost of general operations and administration accounted for 28% of the budget.

AVRDC's research has emphasized the breeding and selection of improved genetic materials, the incorporation of resistance to diseases and insects into new varieties, and crop management. If its strategic plan is endorsed by the Board, its activities will closely resemble those proposed by TAC. The Centre's achievements and impact have been substantial, particularly on tomatoes, chinese cabbage, sweet potato, soybeans and mungbeans. AVRDC intends to phase out research on chinese cabbage and sweet potato, but develop a full scale research programme on peppers, onion, shallot and garlic. Most of the research of AVRDC is of an international character and is generally of high quality. Part of the research appears to be directed at availability of funds and specific interests of Taiwan. This includes some of the mechanical harvesting trials and several aspects of crop management research have also been directed at the advanced cropping systems of Taiwan. AVRDC's socio-economic research is non-existent at present but is expected to become an important part of the programme in the near future. The Centre has very good training programmes, has been effective in information collection and exchange, and has contributed substantially to institutional capacity building in national systems. AVRDC's operations are relatively centralized with 80% of recurrent budget being spent in Taiwan, 10% in Thailand and 10% in country programmes and networks. AVRDC's relationships with national programmes have been primarily collaborative with a major focus on applied and adaptive research and institution building (Annex I). While AVRDC at present only coordinates a network for Southeast Asia (Annex II), it is in the process of setting up a similar network for Eastern and Southern Africa at the request of SACCAR.

AVRDC in 1990 had a budget of US\$ 9 million and 21 senior staff, internationally recruited. In addition AVRDC had 30 national research staff, 45 technicians, 135 support staff and 107 labourers. Total staff numbered 338. About 62% of senior staff are from Asia, 29% from North America and 10% from Europe. According to the External Review, AVRDC is significantly understaffed, particularly in view of the expanded effort envisaged in the Strategic Plan to take on a global mandate.

AVRDC's largest donor has consistently been Taiwan which will provide about 45% of funds during 1990. The USA was the second largest donor with 12% of the budget and the Sasakawa Foundation of Japan contributed about 7%. AVRDC is highly dependent upon host-government funding and a broader donor support base would be recommended. About 81% of AVRDC's funding is unrestricted and 19% is restricted, a very healthy ratio in comparison to most CGIAR and other non-associated centres.

AVRDC has good physical facilities in Taiwan although they may need some repair and upgrading, particularly the laboratory. The Center also has good facilities in Thailand.

AVRDC has been given international status by its host government and by various other national governments. The Centre's mandate is similar to that of a CGIAR centre. Its organizational structure is rational and reasonable, and the Centre's resources have been well managed. The structure and make up of AVRDC's Board of Trustees differs from that of the CGIAR Centres in the extent of donor representation, and the lack of TOR for Board membership. Currently the Board includes a majority of members that relate to the source of funding, i.e. five "country" and two "agency" members representing financial contributors. Five individuals are elected in their individual capacity. The rapid rise in operational costs in Taiwan, particularly in labour costs, has led to a situation in which 75% of AVRDC's costs consist of salary expenditures. As Taiwan's economy further transforms into that of a developed country, this may over the medium term affect its operations.

## 5. Institutional Options

The Panel considered three options with respect to a CGIAR initiative in vegetable research.

The first option was to admit AVRDC into the CGIAR subject to the following main conditions:

- that the Board of AVRDC formally endorse those portions of the draft strategic plan which position AVRDC as a Centre with a global mandate for vegetable research throughout the developing world;
- that AVRDC implement collaborative vegetable research networks in sub-Saharan Africa and Latin America, allocating sufficient resources (financial and human) to these activities in order to respond to research needs of those regions and strengthen their national research systems;
- that AVRDC phases out responsibilities for grain legumes (soybeans and mungbeans) to collaborative national programmes, for sweet potato to CIP, and that it give greater attention to research on green leafy vegetables;
- that AVRDC phase out a major part of its activities specifically targeted towards benefitting specific needs of the host country;
- that AVRDC allocate a substantially higher share of its research resources to its operations in Thailand to take advantage of a greater range of tropical environments;
- that AVRDC maximize the use of available research facilities of collaborative partners in Thailand and elsewhere, and avoid duplication at its headquarters;
- that AVRDC make no further capital investments in new capital infrastructure in Taiwan;
- that AVRDC change its name to International Vegetable Research Institute, to reflect its global mandate;
- that AVRDC adjust its Board composition and selection process in line with the norms prevailing in other centres, and thereby reflect its global concerns with vegetable research;

The second option would be a modification of TAC's basic proposition formulated in 1988. This proposal envisaged the creation of an International Service for Vegetable Research (ISVR) to be located in Southeast Asia which would act as a coordinating body for collaborative research with national programmes through networks and contracting of research and research-related activities. In contrast to the original proposal, the ISVR would have in-house research capacity. AVRDC would remain outside the CGIAR but play a substantial role as a member of the network, with leading responsibilities through contracts for research on tomato and peppers, for medium and long term germplasm storage, information services and training.

A third option would be to incorporate the responsibility for coordinating global efforts in vegetable research into the mandate of an existing CGIAR Centre. This Centre could act as a focal point for regional collaborative network activities. In this option, AVRDC as an entity would remain outside the CGIAR but would closely collaborate with the coordinating centre and the networks.

The Panel recommends the first option to incorporate AVRDC into the CGIAR, subject to the set of conditions as presented. This recommendation is made in the belief that it would be desirable to use available facilities and expertise and to avoid the creation of a new entity if a reconstituted AVRDC can serve the global needs. The Panel has made this recommendation on technical and programmatic grounds. If AVRDC is not in a position to comply with the recommendations, if it would involved a long delay in a start up of a CGIAR initiative, or if political considerations necessitate the search for an alternative, the Panel recommends the second option.

The Panel rejected the third option because it would deviate a CGIAR Centre from its narrow, well-defined focus and because it would be unlikely that vegetable research needs would be adequately met.



## Relationships with National Programs

Collaboration with Individual  
Countries (Developed or Developing)

	Country or Project					
	1 Thailand	2 Malaysia	3 Indonesia	4 Philippines	5 Bangladesh	6 Korea
<b>Purpose of collaboration</b>						
— Strategic research				+		
— Applied research	+	+	+	+	+	+
— Adaptive research	+	+	+	+	+	
— Extension	+		+	+	+	
— Institution-building <sup>11</sup>	+	+	+	+	+	+
<b>Types of relationship:</b>						
— Collaborative	+	+	+	+	+	+
— Contracting	+			+	+	
— Enabling						
<b>Role(s) of centre in the collaboration:</b>						
— Leader/controller	+	+	+	+	+	
— Customer	+		+			
— Partner/collaborator (no funding from Centre)	+	+	+	+	+	+
— Donor	+		+	+		
— Channel for funding		+	+	+	+	

(supplementary)

<sup>11</sup> Institution building refers primarily to training of national research and extension staff.

Relationships with National Programs  
Participation in Networks

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AVNET: Collaborative Vegetable Research Network for South East Asia

Main purpose of network:

Strategic research	
Applied research	+
Adaptive research	+
Extension	
Institution-building	+

Type of network:

Collaborative	+
Research contracting	+
Research enabling	+

Role(s) of Centre in the network:

Administrator/controller	+
Scientific coordinator	+
Partner/collaborator	+
(no funding from Centre)	
Scientific consultant/	+
provider of germplasm	
Channel for funding	+

Notes: 1. This network has two components:

- 1) Germplasm improvement
- 2) Integrated pest management of Diamondback Moth

The sub-network for germplasm improvement has the following research topics:

- 1) Germplasm evaluation of onion, garlic, shallot, yardlong bean and cucumbers
- 2) Bacterial wilt screening of tomatoes
- 3) Anthracnose screening of peppers
- 4) Pepper viruses

2. The network countries are Indonesia, Malaysia, Thailand and the Philippines. The donor agency is Asian Development Bank with an outlay of US\$600,000 over a period of 3 years.

3. Institution building includes training, joint planning and monitoring.

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